



# MATERIAL SAFETY DATA SHEET

(Essentially similar to U.S. Department of Labor Form OSHA-20)

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F-4636



PRODUCT	Nitrous Oxide (Liquefied Gas Under Pressure)		
CHEMICAL NAME	Nitrous Oxide	SYNONYMS	Dinitrogen Monoxide
FORMULA	N <sub>2</sub> O	CHEMICAL FAMILY	---
TRADE NAME AND SYNONYMS	Laughing Gas	MOLECULAR WEIGHT	44.013

Refer to Section V for TLV information. For mixtures of this product request the respective component Material Safety Data Sheets.

BOILING POINT, 760 mm. Hg	-88.5°C (-127.3°F)	FREEZING POINT	-90.8°C (-131.5°F)
SPECIFIC GRAVITY (H <sub>2</sub> O = 1)	---	VAPOR PRESSURE AT 20°C.	745 psig
VAPOR DENSITY (air = 1)	1.53 @ 15°C	SOLUBILITY IN WATER, % by wt.	Slight
PER CENT VOLATILES BY VOLUME	100	EVAPORATION RATE (Butyl Acetate = 1)	High
APPEARANCE AND ODOR	Colorless, sweet odor		

FLASH POINT (test method)		N/A	AUTOIGNITION TEMPERATURE		N/A
FLAMMABLE LIMITS IN AIR, % by volume		LOWER	N/A	UPPER	N/A

## EXTINGUISHING MEDIA

Oxidizing agent. May accelerate combustion. Use media appropriate for surrounding fire.

## SPECIAL FIRE FIGHTING PROCEDURES

Evacuate all personnel from danger area. Do not approach area without self-contained breathing apparatus and protective clothing. Immediately cool containers with water spray from maximum distance until cool then move containers away from fire area if without risk. If containers are leaking reduce vapors with water spray or fog. Shut off leak if without risk. Move containers away from fire area if without risk.

## UNUSUAL FIRE AND EXPLOSION HAZARDS

Oxidizing agent, may accelerate combustion. Contact with flammable materials may cause fire or explosion. Container may rupture due to heat of fire. Decomposes explosively at high temperature. No part of a container should be subjected to a temperature higher than 52°C (approximately 125°F). Most containers are provided with a pressure relief device designed to vent contents when they are exposed to elevated temperature.

IN CASE OF EMERGENCIES involving this material, further information is available at all times at this telephone number:

304: 744-3487

For routine information contact your local Linde Supplier.

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BOE-C6-0228374

**PRODUCT:** Nitrous Oxide (Liquefied Gas Under Pressure)

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**THRESHOLD LIMIT VALUE** Not established (ACGIH-1978)

**EFFECTS OF OVEREXPOSURE AND EMERGENCY AND FIRST AID PROCEDURES**

Asphyxiation, anesthesia.

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician. If exposed to liquid, restore tissue to normal body temperature (98.6°F) as rapidly as possible followed by protection of the injured tissue from further damage and infection. Call a physician. Rapid warming of the affected part is best achieved by using water at 108°F. Under no circumstances should the water be over 112°F, nor should the frozen part be rubbed either before or after rewarming. The patient should not smoke, nor drink alcohol. Keep warm and at rest.

STABILITY		CONDITIONS TO AVOID
Unstable	Stable	
	X	

See Section IX.

**INCOMPATIBILITY (materials to avoid)** Oils, greases, flammable materials.

**HAZARDOUS DECOMPOSITION PRODUCTS**

This compound decomposes explosively at high temperature.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur	Will not Occur	
	X	

**STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED** Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Contact with flammable materials may cause fire or explosion (see Section IV). Reduce vapors with fog or fine water spray. Shut off leak if without risk. Ventilate area of leak or move leaking container to well ventilated area.  
**CAUTION:** Vapors may spread from spill. Before entering area, especially confined areas, check atmosphere with appropriate device.

**WASTE DISPOSAL METHOD**

Prevent waste from contaminating surrounding environment. Keep personnel away. Call supplier for disposal information.

**RESPIRATORY PROTECTION (specify type)**

Self-contained breathing apparatus where needed.

VENTILATION	LOCAL EXHAUST Acceptable	SPECIAL ---
	MECHANICAL (general) Inadequate	OTHER ---
PROTECTIVE GLOVES Preferred for cylinder handling & liquid exposure.		EYE PROTECTION  Full face shield & safety glasses
OTHER PROTECTIVE EQUIPMENT Metatarsal shoes for cylinder handling. Protective clothing where needed.		

**WARNING:** Liquefied oxidizing gas under pressure. Vigorously accelerates combustion. Use piping and equipment adequately designed to withstand pressures to be encountered. Store and use with adequate ventilation at all times. Use only in closed system conditioned for Nitrous Oxide service. Close valve when not in use and when empty. Store away from flammable materials.

**OTHER HANDLING AND STORAGE CONDITIONS**